APPENDIX

Claims 15, 17, 20, 21 and 28 are cancelled. New claims 36 and 37 are added. Remaining claims are amended as follows:

20. (Amended) The method of claim [17] 37, wherein the oligomers independently comprise subunits selected from the group consisting of deoxyribonucleotides, ribonucleotides, and analogs of deoxyribonucleotides or ribonucleotides; and any single oligomer comprises one or a combination of two or more of said different types of subunits.

21. (Amended) The method of claim [17] 37 wherein each of said oligomers forming said content addressable memory matrix $T_{ij}$ comprises, in order from the 5' end to the 3' end, (a) an oligomer strand comprising a nucleotide sequence representing an i-th component of $V$ selected from the group consisting of $E_i$ and $\underline{E}_i$ for $i = 1$ to $i = m$, (b) an oligomer strand comprising a nucleotide sequence representing a j-th component of $V$ selected from the group consisting of $E_j$ and $\underline{E}_j$ for $j = 1$ to $j = m$, wherein $j \neq i$, and (c) a nucleotide sequence F that is not complementary to any sequence $E_i$ or $\underline{E}_i$ for $i = 1$ to $i = m$.

22. (Amended) The method of claim [17] 37 wherein said single-stranded oligomers comprising a complete, substoichiometric set of $E_i$ of step (c) and $\underline{E}_i$ are anchored to a solid support.

27. (Thrice amended) The method of claim [11] 9 wherein said operation of matrix or vector algebra is determining the inner product of two vectors $V$ and $W$, and said method comprises:

(i) obtaining for each vector $V$ and $W$, sets of single-stranded oligomers $E_i$ and $\underline{E}_i$ representing the components of the vector, wherein the concentrations of the oligomers $E_i$ and $\underline{E}_i$ are proportional to the absolute values of the amplitudes of the components they represent; and

also obtaining a set of single-stranded oligomers $E_i$ and $\underline{E}_i$ representing the components of vector $\underline{W}$ that are complementary to said oligomers representing vector $W$, wherein the relative concentrations of the oligomers representing $\underline{W}$ are proportional to the concentrations of their complementary oligomers in $W$],

wherein the nucleotide sequences of oligomers that represent the components of said vectors $V$, $W$, and $\underline{W}$ have minimal overlap with the nucleotide sequences of the oligomers representing the other components of said vectors];

(ii) combining samples of the oligomers representing vector $V$ with samples of the oligomers representing vectors $W$ and $\underline{W}$ in separate <u>respective first and second</u> reaction mixtures and measuring [the] <u>$R_+$ and $R_-$</u> rates of hybridization [of said] <u>associated with the respective first and second</u> mixtures, and obtaining a numerical value proportional to the inner product of the two vectors from [said] <u>a difference between said $R_+$ and $R_-$</u> rates of hybridization.